Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer implemented method comprising:

translating a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translating one or more assembly constraints of the mechanical design assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating an assembly constraint ~~constraints~~ includes: identifying one or more geometry elements in the first representation that are constrained by the assembly constraint, identifying one or more corresponding geometry elements in the second representation and applying the assembly constraint to the one or more corresponding geometry elements in the second representation. ~~converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system.~~

2. (Previously Presented) The method of claim 1, wherein translating a first representation of parts or sub-assemblies into a second representation comprises tracking correspondence between the first and second representations during the translation.

3. Cancelled.

4. (Currently Amended) ~~The method of claim 3,~~ A computer implemented method comprising:

translating a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translating one or more assembly constraints of the mechanical design assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system; and

wherein said translating of one or more assembly constraints comprises identifying geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and correspondingly constraining said counterpart geometric entities within said translated representations; and

wherein said identifying comprises:

identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

selecting a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, applying the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

5. (Previously Presented) The method of claim 1, wherein said one or more assembly constraints comprise a selected one of a mating constraint and a flush constraint constraining on at least a first and a second sub-assembly or part of said mechanical design assembly.

6. (Previously Presented) The method of claim 1, wherein said one or more assembly constraints comprise a selected one of an angle constraint and a rotational constraint constraining on at least a first and a second sub-assembly or part of said mechanical design assembly.

7. (Currently Amended) An article of manufacture comprising:

a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machine to enable the host machine to

translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating an assembly constraint~~constraints~~ includes : identifying one or more geometry elements in the first representation that are constrained by the assembly constraint, identifying one or more corresponding geometry elements in the second representation and applying the assembly constraint to the one or more corresponding geometry elements in the second representation ~~converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system~~.

8. (Previously Presented) The article of manufacture of claim 7, wherein said programming instructions further enable the host machine to track correspondence between the first and second representations during the translation.

9. Cancelled.

10. (Currently Amended) ~~The article of claim 9,~~ An article of manufacture comprising:

a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machine to enable the host machine to

translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system; and

wherein said programming instructions enable the host machine to:

identify geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations; and

wherein said programming instructions further enable the host machine to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

11. (Currently Amended) A computer system comprising:

a storage medium having stored therein a plurality of programming instructions to

translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly, and thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating an assembly constraint~~constraints~~ includes: identifying one or more geometry elements in the first representation that are constrained by the assembly constraint, identifying one or more corresponding geometry elements in the second representation and applying the assembly constraint to the one or more corresponding geometry elements in the second representation ~~converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system~~; and

a processor coupled to the storage medium to execute the programming instructions.

12. (Previously Presented) The computer system of claim 11, wherein said programming instructions are further designed to track correspondence between the first and second representations during the translation.

13. Cancelled.

14. (Currently Amended) ~~The computer system of claim 13~~ A computer system comprising:

a storage medium having stored therein a plurality of programming instructions to translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly, and thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second,

different format of a second, different design system; and

a processor coupled to the storage medium to execute the programming instructions; and

wherein said programming instructions are designed to:

identify geometric entities within said translated representation that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations; and

wherein said programming instructions are designed to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

15. (Currently Amended) A method comprising:

determining geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, ~~that~~ where the geometric entities within a plurality of pre-translation representations are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined ~~counterpart~~corresponding geometric entities within the translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly.

16. (Currently Amended) ~~The method of claim 15,~~A method comprising:

determining geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined counterpart geometric entities within the translated representations of the sub-assemblies and/or parts to; and

wherein said determining comprises:

identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

selecting a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, applying the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

17. (Currently Amended) An article of manufacture comprising:

a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machined to enable the host machine to:

determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, ~~that~~ where the geometric entities within a plurality of pre-translation representations are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint

defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined ~~counterpart~~corresponding geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly.

18. (Currently Amended) ~~The article of claim 17,~~ An article of manufacture comprising:

a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machined to enable the host machine to:

determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and

wherein said programming instructions enable the host machine to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to geometric entities within said translated representations to identify the counterpart geometric entities.

19. (Currently Amended) A computer system comprising:

a storage medium having therein a plurality of programming instructions to determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, ~~that~~ where the geometric entities within a plurality of pre-translation representations are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly, and correspondingly constraining the determined ~~counterpart~~corresponding geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and

a processor coupled to the storage medium to execute the program instructions.

20. (Currently Amended) ~~The computer system of claim 19,~~ A computer system comprising:

a storage medium having therein a plurality of programming instructions to determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly, and correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and

a processor coupled to the storage medium to execute the program instructions; and

wherein said programming instructions are designed to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

21. (Previously Presented) The method of claim 1, wherein:

translating a first representation of parts or sub-assemblies into a second representation includes changing a modeling approach from a first modeling approach used to generate the first representation to a second modeling approach used to generate the second representation.

22. (Previously Presented) The article of manufacture of claim 7, wherein:

to translate a first representation of parts or sub-assemblies into a second representation includes to change a modeling approach from a first modeling approach used to generate the first representation to a second modeling approach used to generate the second representation.

23. (New) The method of claim 1, wherein said identifying one or more corresponding geometry elements in the second representation comprises:

selecting a plurality of spatial sampling points for each of said identified geometry elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, using coordinates of the selected spatial sampling points to identify a corresponding geometry element within said translated second representation.

24. (New) The article of claim 7, wherein said programming instructions enable the host machine to:

select a plurality of spatial sampling points for each of said identified geometry elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, use coordinates of the selected spatial sampling points to identify the corresponding geometry elements within said translated second representation.

25. (New) The computer system of claim 11, wherein said programming instructions are designed to:

select a plurality of spatial sampling points for each of said identified geometry elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, use the selected spatial sampling points to identify the corresponding geometry elements within said translated second representation.